Volunteer Lake Assessment Program Individual Lake Reports

WEBSTER LAKE, FRANKLIN, NH

MORPHOMETRIC DATA

Watershed Area (Ac.):	11,136	**Max. Depth (m):**	11.8	**Flushing Rate (yr^{1})**	1.5
Surface Area (Ac.):	612	**Mean Depth (m):**	5.5	**P Retention Coef:**	0.58
Shore Length (m):	6,900	**Volume (m^{3}):**	13,586,500	**Elevation (ft):**	401

TROPHIC CLASSIFICATION

Year	Trophic class
1979	MESOTROPHIC
1993	OLIGOTROPHIC

KNOWN EXOTIC SPECIES

The Waterbody Report Card tables are generated from the 2012 305(b) report on the status of N.H. waters, and are based on data collected from 2001-2011.

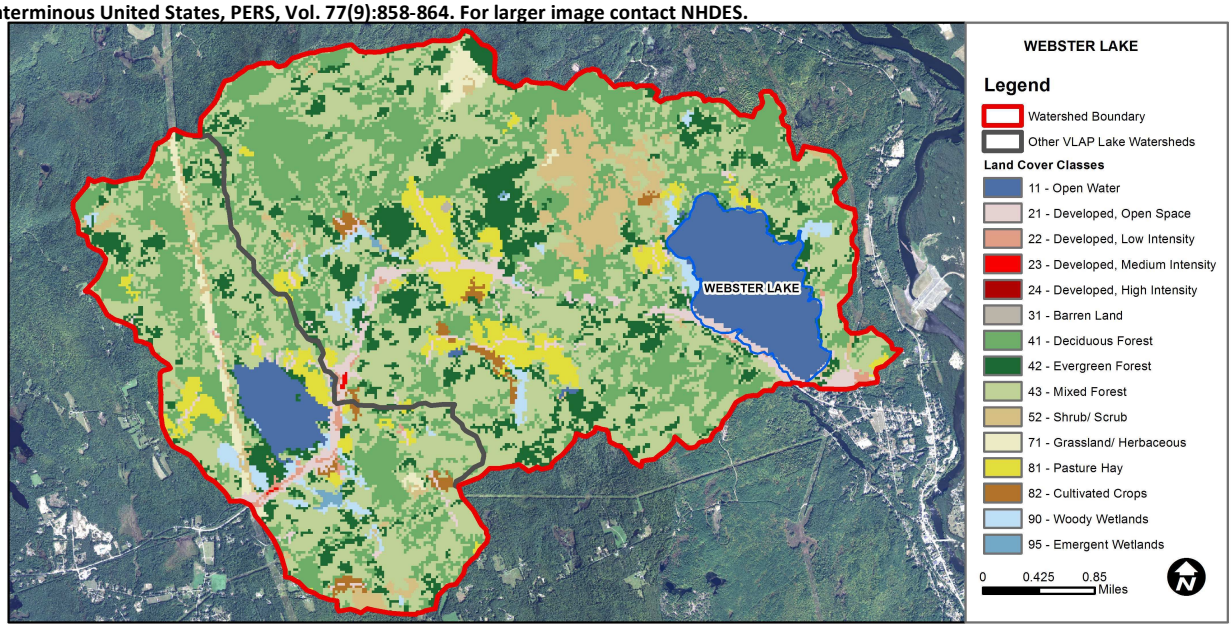
Designated Use	Parameter	Category	Comments
Aquatic Life	Phosphorus (Total)	Good	>/=5 samples and median is < threshold but > 1/2 threshold value.
	pH	Slightly Bad	>10% of samples exceed criteria by a small margin (minimum of 2 exceedances).
	D.O. (mg/L)	Encouraging	< 10 samples and no exceedance of criteria. More data needed.
	D.O. (% sat)	Slightly Bad	>10% of samples exceed criteria by a small margin (minimum of 2 exceedances).
	Chlorophyll-a	Good	>/=5 samples and median is < threshold but > 1/2 threshold value.
Primary Contact Recreation	E. coli	Good	Geometric means < criteria; however at least 1 exceedance of the single sample criteria occurred.
	Cyanobacteria	Slightly Bad	Cyanobacteria bloom(s).
	Chlorophyll-a	Good	At least 10 samples with 1 sample but < 10% of samples exceeding criteria.

BEACH PRIMARY CONTACT ASSESSMENT STATUS

WEBSTER LAKE - LAGACE TOWN BEACH	E. coli	Bad	>/=1 exceedance(s) of geometric mean criterion and/or >/=2 exceedances of single sample criterion, with 1 or more >2X criteria.
WEBSTER LAKE - LAGACE TOWN BEACH	Cyanobacteria	Slightly Bad	Cyanobacteria bloom(s).
WEBSTER LAKE - GRIFFIN TOWN BEACH	E. coli	Bad	>/=1 exceedance(s) of geometric mean criterion and/or >/=2 exceedances of single sample criterion, with 1 or more >2X criteria.
WEBSTER LAKE - GRIFFIN TOWN BEACH	Cyanobacteria	Slightly Bad	Cyanobacteria bloom(s).

WATERSHED LAND USE SUMMARY

Fry, J., Xian, G., Jin, S., Dewitz, J., Homer, C., Yang, L., Barnes, C., Herold, N., and Wickham, J., 2011. Completion of the 2006 National Land Cover Database for the Conterminous United States, PERS, Vol. 77(9):858-864. For larger image contact NHDES.



Land Cover Category	% Cover	Land Cover Category	% Cover	Land Cover Category	% Cover
Open Water	7.45	Barren Land	0.03	Grassland/Herbaceous	1.31
Developed-Open Space	3.01	Deciduous Forest	26.81	Pasture Hay	4.8
Developed-Low Intensity	0.42	Evergreen Forest	11.42	Cultivated Crops	0.86
Developed-Medium Intensity	0.04	Mixed Forest	37.07	Woody Wetlands	1.8
Developed-High Intensity	0	Shrub-Scrub	4.61	Emergent Wetlands	0.18

VOLUNTEER LAKE ASSESSMENT PROGRAM INDIVIDUAL LAKE REPORTS
WEBSTER LAKE, FRANKLIN, NH
2012 DATA SUMMARY

OBSERVATIONS AND RECOMMENDATIONS (*Refer to Table 1 and Historical Deep Spot Data Graphic)*

- **CHLOROPHYLL-A:** Chlorophyll levels were low in June and July and below the NH lake median. Historical trend analysis indicates chlorophyll levels tend to fluctuate from year to year.
- **CONDUCTIVITY/CHLORIDE:** Conductivity and chloride were slightly elevated in Sucker Brook likely due to agricultural impacts upstream. Conductivity was average to low at all other stations.
- **E. COLI:** E. coli levels in Sucker Brook and Lake Ave Trib were elevated, however not greater than the state standard for surface waters. A rain event occurred prior to sampling and stormwater runoff likely contributed to the elevated levels.
- **TOTAL PHOSPHORUS:** Deep spot phosphorus levels were low in June and July. Phosphorus levels were elevated in Gagnes Brook and Lake Ave Trib on the June sampling event and turbidity was also slightly elevated. A rain event occurred prior to sampling and stormwater runoff likely contributed to the elevated levels.
- **TRANSPARENCY:** Transparency improved from June to July; however the average was lower than 2010 and 2011 levels. Historical trend analysis indicates a significantly decreasing (worsening) transparency since monitoring began.
- **TURBIDITY:** Turbidity was elevated in Gagnes Brook, Lake Ave Trib and Sucker Brook in June following a rain event. Metalimnetic (middle water layer) turbidity was slightly elevated in June likely due to a layer of algae at that depth.
- **PH:** Historically, deep spot pH tends to fluctuate below desirable levels.
- **RECOMMENDED ACTIONS:** Lake Ave Trib has a history of fluctuating E. coli and phosphorus levels. Conduct storm event and bracket sampling to help identify potential sources of the elevated levels. Domestic animal waste may be contributing to elevated E. coli levels. Educate watershed residents to "Scoop the Poop" and pick up and properly dispose of pet waste. The lake has a history of cyanobacteria blooms; notify DES immediately if a bloom occurs.

Table 1. 2012 Average Water Quality Data for WEBSTER LAKE

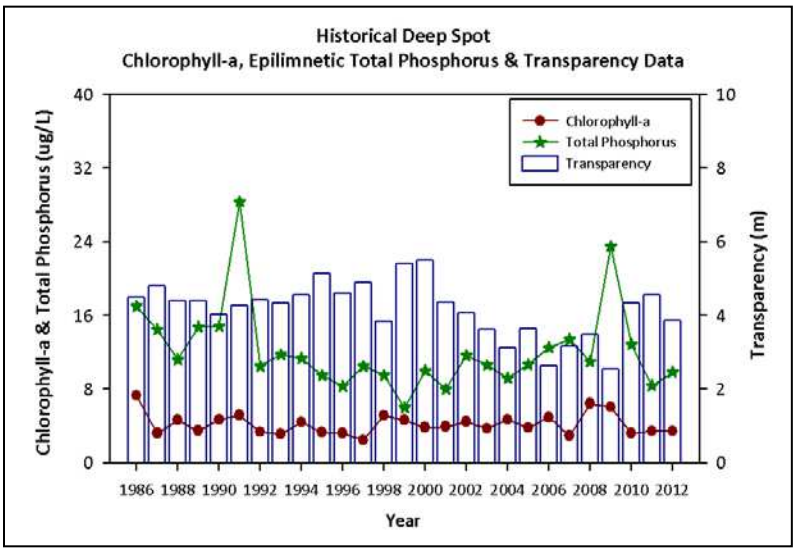
Station Name	Alk.	Chlor-a	Chloride	Cond.	E. Coli	Total P	Trans.		Turb.	pH
	mg/l	ug/l	mg/l	uS/cm	#/100ml	ug/l	m		ntu	
							NVS	VS		
Deep Epilimnion	7.00	3.45	5	44.9		10	3.88	4.63	0.74	6.89
Deep Metalimnion				45.0		10			1.07	6.74
Deep Hypolimnion				45.9		15			1.75	6.58
Gagnes Brook				29.1	60	31			1.66	6.14
Lake Ave Trib				32.2	250	28			1.85	6.15
Rte 11 Inlet				17.3	40	8			0.23	6.29
Sucker Brook			12	83.0	310	12			0.77	6.91

NH Median Values: Median values for specific parameters generated from historic lake monitoring data.
Alkalinity: 4.9 mg/L
Chlorophyll-a: 4.58 mg/m^3
Conductivity: 40.0 uS/cm
Chloride: 4 mg/L
Total Phosphorus: 12 ug/L
Transparency: 3.2 m
pH: 6.6

NH Water Quality Standards: Numeric criteria for specific parameters. Results exceeding criteria are considered a water quality violation.
Chloride: < 230 mg/L (chronic)
E. coli: > 88 cts/100 mL – public beach
E. coli: > 406 cts/100 mL – surface waters
Turbidity: > 10 NTU above natural level
pH: 6.5-8.0 (unless naturally occurring)

HISTORICAL WATER QUALITY TREND ANALYSIS

Parameter	Trend	Explanation
Chlorophyll-a	Variable	Data fluctuate annually, but are not significantly increasing or decreasing.
Transparency	Degrading	Data significantly decreasing (worsening).
Phosphorus (epilimnion)	Variable	Data fluctuate annually, but are not significantly increasing or decreasing.



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